

Title (en)  
Smoothing device

Title (de)  
Glättvorrichtung

Title (fr)  
Appareil de lissage

Publication  
**EP 1340608 B2 20110420 (DE)**

Application  
**EP 02003867 A 20020221**

Priority  
EP 02003867 A 20020221

Abstract (en)  
[origin: EP1340608A1] Apparatus for smoothing plastic film or sheet has a smoothing roller (1) which is driven by a motor whose rotor (5) is directly attached to the roller drive shaft (6).

IPC 8 full level  
**B29C 59/04** (2006.01); **D21F 7/02** (2006.01); **D21G 1/00** (2006.01)

CPC (source: EP US)  
**D21F 7/02** (2013.01 - EP US); **D21G 1/0006** (2013.01 - EP US); **B29K 2995/0073** (2013.01 - EP US)

Citation (opposition)  
Opponent :

- DE 29910332 U1 20001026 - STRUCKMEIER GMBH ANTRIEBSTECHN [DE]
- DE 19721170 A1 19981126 - EMTEC MAGNETICS GMBH [DE]
- DE 2900734 A1 19800717 - ASAHI CHEMICAL IND
- WO 0186781 A1 20011115 - ABB RESEARCH LTD [CH], et al
- DE 4138479 A1 19930603 - BAUMUELLER NUERNBERG GMBH [DE], et al
- DE 1975025 U 19671214 - PERKINS & SON INC B F [US]
- EP 0899081 A1 19990303 - IDEMITSU PETROCHEMICAL CO [JP]
- US 5318340 A 19940607 - HENRY ROBERT R [US]
- DE 3730043 A1 19890316 - REIFENHAEUSER MASCH [DE]
- DE 4322744 A1 19950119 - BAUMUELLER NUERNBERG GMBH [DE], et al
- DE 3544751 A1 19870619 - HEIDELBERGER DRUCKMASCH AG [DE]
- BAUMÜLLER NÜRNBERG: "Direktantriebstechnik Integration von Mechanik und Elektronik", DIREKTANTRIEBSTECHNIK, September 1994 (1994-09-01), NÜRNBERG

Cited by  
WO2013057097A1; EP1749929A3; KR20140079383A; EP2801660A1; US9878478B2

Designated contracting state (EPC)  
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR

DOCDB simple family (publication)  
**EP 1340608 A1 20030903; EP 1340608 B1 20040630; EP 1340608 B2 20110420**; AT E270182 T1 20040715; CN 1308210 C 20070404; CN 1439589 A 20030903; DE 50200576 D1 20040805; DK 1340608 T3 20041004; ES 2219593 T3 20041201; ES 2219593 T5 20110609; PT 1340608 E 20041029; US 2004000826 A1 20040101; US 6781271 B2 20040824

DOCDB simple family (application)  
**EP 02003867 A 20020221**; AT 02003867 T 20020221; CN 03105485 A 20030221; DE 50200576 T 20020221; DK 02003867 T 20020221; ES 02003867 T 20020221; PT 02003867 T 20020221; US 45808403 A 20030610